March 19, 1999

EA No. 99-056

Mr. R. P. Powers
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107-1395

SUBJECT: NRC INSPECTION REPORT 50-315/99002(DRS); 50-316/99002(DRS)

Dear Mr. Powers:

On February 19, 1999, the NRC completed a special inspection conducted at your Buchanan Michigan Corporate facility. This inspection was an examination of activities under your license as they relate to your implementation of the Expanded System Readiness Review program at your D. C. Cook Units 1 and 2 reactor facilities. The NRC understands that these reviews are intended to provide assurance that safety-related plant systems fulfill their design basis safety functions and to determine system restart readiness. The NRC will continue to monitor and assess the effectiveness of these efforts. The enclosed report documents the results of the inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, and interviews with personnel. At the conclusion of the inspection, the findings were discussed with you and members of your staff.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation pertained to the failure of the quality assurance program to assure receipt of all technical information for safety related components provided by nuclear steam system supply vendors. This violation appears to be another manifestation of the design control breakdown that contributed to the extended shutdown and improvement initiatives under way at D. C. Cook. This Severity Level IV violation is being treated as a Non-Cited Violation (NCV). Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in a licensee corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable.

The D. C. Cook Plant corrective action program was not adequate and has been the focus of significant attention by your staff to improve the program. While your staff and the NRC have not yet concluded that the corrective action program is fully effective, the corrective action and design control program improvement efforts are underway and captured in the D. C. Cook Plant Restart Plan which is under the formal oversight of the NRC through the NRC Manual Chapter 0350 process, “Staff Guidelines for Restart Approval.” Consequently, this issue will be dispositioned as an NCV.

In accordance with 10 CFR 2.790 of the NRC'S "Rules of Practice," a copy of this letter, the enclosure, and your response to this letter, if you choose to provide one, will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Original /s/ John A. Grobe

John A. Grobe, Director
Division of Reactor Safety

Docket Nos.: 50-315; 316
License No.: DPR-58; DPR-74

Enclosure: Inspection Report 50-315/99002(DRS);
50-316/99002(DRS)

cc w/encl: M. Rencheck, Vice President, Nuclear Engineering
D. Cooper, Plant Manager
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Emergency Management Division
MI Department of State Police
D. Lochbaum, Union of Concerned Scientists

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-315; 50-316
License No:	DPR-58; DPR-74
Report No:	50-315/99002(DRS); 50-316/99002(DRS)
Licensee:	Indiana Michigan Power Company
Facility:	Donald C. Cook Nuclear Generating Plant
Location:	American Electric Power Corporate Office Buchanan, Michigan
Dates:	February 2-19, 1999
Inspectors:	R. Mendez, Reactor Engineer M. Holmberg, Reactor Engineer
Approved by:	James Gavula, Chief, Engineering Specialists Branch 1 Division of Reactor Safety

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EXECUTIVE SUMMARY

D. C. Cook, Units 1 and 2
NRC Inspection Reports 50-315/99002(DRS); 50-316/99002(DRS)

This was an engineering special inspection to review the expanded system readiness review (ESRR) program and to evaluate the effectiveness in licensee training of personnel involved in this effort. In conjunction with other ongoing programs and resolution of issues identified during previous efforts, the licensee initiated the ESRR program to provide reasonable assurance that plant systems were capable of operating within their design and licensing basis.

C The inspectors concluded that weaknesses identified in the original system readiness review process had been corrected. However, the licensee had not initially required the ESRR teams to include the individual plant examination document in selecting system attributes for review. Additionally, the inspectors noted that the reactor core was not included as one of the systems, structures or components required to be reviewed (Section E3.1.b.1 and b.3).

- The ESRR procedure described a systematic approach that was a substantial improvement over the original safety readiness review guidelines completed in 1998 (Section E3.1.b.2).

- The data base systems used by the licensee included a compiled data resource and an electronic data management system that provided an excellent and efficient method for the ESRR teams to implement the reviews of their systems (Section E3.1.b.4).

- The selection of experienced personnel to staff the ESRR teams, the focused approach on identification of issues and the licensee's decision not to project a restart date demonstrated the licensee's commitment to an effective effort (Section E3.1.b.5).

- The results of the diesel generator walkdown for the diesel generator were acceptable; however, the strategy for the walkdown was not documented and the walkdown did not include the control room (Section E3.1.b.7).

- The ESRR training was effectively implemented. The subject matter, the scope and depth of training of the ESRR teams provided, was adequate for the teams to perform their assigned tasks. However, the ESRR training did not include training pertaining to 10 CFR 50.59 operability determinations (Section E5.1.b.2 and b.3).

- A non-cited violation was identified concerning the failure of the licensee to establish a recontact program for the nuclear steam system supply vendors that supplied safety related plant equipment (Section E7.1.b.1).

- The system readiness review board consisted of knowledgeable individuals. The board possessed a good focus on safety. In general, extensive management involvement was not needed to ensure consistent application of the ESRR process. Increased management oversight was needed in the development of the system assessment matrix (Section E7.1.b.1 and b.2).

- The performance assurance department was determined to be actively involved in the ESRR process. The system readiness review oversight plan described oversight of the ESRR process and provided for prompt feedback (Section E7.1.b.3 and b.4).

Report Details

III. Engineering

E3 Engineering Procedures and Documentation

E3.1 Expanded System Readiness Review (ESRR) Procedure Implementation

a. Inspection Scope

Inspectors reviewed previous NRC and licensee audits on the original system readiness review (SRR) to determine if deficiencies with this process had been corrected in the Plant Manager Procedure (PMP) 7200.RST.004, "Expanded System Readiness Review Program."

Inspectors reviewed staffing, preparation and support established for the ESRR teams. Inspectors interviewed ESRR team staff involved in researching design basis information to select system attributes and topical review areas for development of the system assessment matrix (SAM).

b. Observations and Findings

The ESRR program, described in procedure PMP 7200.RST.004, assessed the conformance of the plant design, testing, maintenance, operation and configuration with the licensing and design basis requirements. In conjunction with other programs and resolution of issues identified in the course of this review, the ESRR was intended to provide reasonable assurance that plant systems were capable of meeting design and licensing basis functions. The systems, structures and components (SSCs) reviewed under the ESRR process were classified level 1 or level 2 by the licensee.

For the level 1 review, the licensee selected 39 SSCs that included the safety-related systems and the high risk significant maintenance rule SSCs. The review scope also included significant support systems needed to support the level 1 system operation. The level 1 reviews consisted of a four phase process described in the ESRR procedure. Phase 1 titled "Initial Expanded Readiness Review," involved the primary discovery phase in which teams of engineers would review the detailed level 1 system attributes against the design basis system safety functions and identify discrepancies to the System Readiness Review Board (SRRB). Phase 2 titled "Restart Activities Monitoring" of the ESRR involved the resolution and evaluation of issues identified in phase 1. Phase 3 titled "Final Expanded System Readiness Review" included the final system walkdown, review of open work and presentation of the final system readiness report to the SRRB. Phase 4 titled "Startup and Power Ascension" included review of system testing, establishment of a base-line for system performance and completion of the system readiness affirmation.

b.1 Extensive ESRR Scope

The ESRR procedure defined the process, staffing and training needed to execute the level 1 system review. A graded approach to inspections was described, with the high-risk significant systems receiving more thorough reviews. The remaining balance-of-plant systems (45) would receive a less rigorous level 2 system that will be described in a separate procedure under development.

The inspectors noted, however, that the licensee's level 1 or 2 system reviews did not include the reactor core, internal core support structures or control rods since these were not included directly as part of a plant safety system. The inspectors noted that core performance in meeting design basis functions was required to ensure acceptable outcomes for accidents and safe shutdown scenarios. The vice president of engineering indicated that the programmatic reviews performed (in addition to the ESRR efforts) would provide the licensee confidence in the licensee's programs and processes that assure core design performance. The inspectors concluded that the ESRR review scope was comprehensive and represented a substantial improvement over the original SRR scope completed in early 1998.

b.2 Original SRR Deficiencies Corrected in the ESRR Procedure

The inspectors confirmed that weaknesses (including lack of procedural controls, lack of retrospective examination of materiel condition documented in closed condition reports and surveillance audits by Quality Assurance, lack of review of calculations, design documents, and the licensing basis information) with the original system readiness review process had been corrected in the ESRR procedure for the level 1 system reviews (with one exception as discussed below). The inspectors noted that system attributes (key system parameters, including system safety functions) were required to be identified and verified by the ESRR team members for conformance with the topical review areas. The topical review areas encompassed the information sources defining the plant design and licensing basis. This methodology provided a check of key system attributes, to ensure design basis performance. Overall, the inspector concluded that the ESRR procedure described a systematic broad scope program that offered substantial improvement over the original SRR guidelines for determining the capability of a system to meet design basis safety functions.

b.3 Potential ESRR Procedure Vulnerability Corrected

Inspectors noted that the D.C. Cook individual plant examination (IPE) was listed only as an available resource and the ESRR procedure, Revision 0, did not require the ESRR teams to make use of the IPE to identify risk significant components or system manipulations. This issue had been previously identified by the Engineering Issues Review Group Final Report, dated December 19, 1998, as a vulnerability with the original SRR process. The inspectors' questions on the potential use of the IPE prompted the licensee staff to revise procedure PMP 7200.RST.004 to require that the ESRR teams consider the IPE in developing the system attributes. The licensee staff considered that the IPE would provide more awareness of the safety significance of the system functions, but that it would not assist the ESRR team in identification of safety-related functions, because the IPE was not part of the plant's design and licensing basis. This response was accurate, however, the licensee's subsequent

decision to incorporate the IPE, indicated that the licensee had not fully explored and corrected this former SRR vulnerability.

b.4 Comprehensive Data Resources Established for the ESRR Teams

The ESRR procedure, Attachment 6 identified a comprehensive list of documentation and data sources that were available to the ESRR teams. To facilitate efficient reviews of this data, the licensee developed a licensing basis review document for each ESRR team. This document identified attributes defined as any quality, characteristic, parameter, or design feature inherent to a structure system or component that was necessary to be obtained in order for the structure, component, or system to perform the intended design, operating and/or safety function. In addition to this document, each team had a set of system notebooks with a comprehensive set of information compiled in hard copy and/or available as a searchable data base on CD-ROM. This information included; the UFSAR, the UFSAR change requests, technical specifications, safe shutdown capability assessment, NRC safety evaluations, licensee event reports, NRC information notices, generic letters, NUREGs, NRC inspection report open items, operating experience information and NRC commitments. Additionally, several electronic data bases (primarily the system index data base system) which contained condition reports, system modifications, action requests, operability evaluations (in excess of 800) and other system related information in a searchable/retrievable format was available to each ESRR team at dedicated computer work stations. Further, the licensee had established a system assessment data base network, which was a computerized data management system to be used by the ESRR teams in documenting the results of their review efforts. Inspectors concluded that the compiled data resources and electronic data management systems provided ESRR teams with comprehensive and sufficient information to implement the ESRR reviews.

b.5 Experienced Staffing Established for ESRR Teams

Staffing of ESRR teams typically consisted of a dedicated team leader and two contract personnel with the balance of the team composed of shared AEP staff. The contract engineering staff involved in this effort had engineering degrees with extensive nuclear power industry experience. Further, many contractors had advanced engineering degrees and/or prior experience at other utilities with system readiness review processes. Augmenting this core group included the following D.C. Cook staff: an operations representative (licensed reactor operator) shared by two teams; a maintenance representative shared by two teams; a licensing representative shared by three teams; and a design engineering representative shared by four teams. For phase one (the identification/discovery phase of the ESRR) eighteen teams were initially formed, rising to a maximum of twenty-one teams at the peak of the level 1 system reviews. In total, approximately 100 personnel were initially assigned to the ESRR teams. The selection of experienced personnel to staff the ESRR teams, the focused approach on identification of issues during phase one of this process coupled with the decision to not project a restart date (until completion of the identification phase), demonstrated the licensee management commitment to an effective effort.

b.6 System Assessment Matrix (SAM) Development

Figures 1 and 2 of the Addendum to the ESRR procedure described the SAM. The SAM consisted of attributes (rows) and topic review areas (columns) that define the scope of work and when completed provide the summary basis of the conclusions of the ESRR. The attributes were defined as key system parameters, including safety and accident mitigation functions to be evaluated against the topic review areas. The topic review area consisted of documents and sources of information pertaining to design, licensing, operations, maintenance, surveillance, physical plant, programs, processes and procedures. Inspectors reviewed draft versions of three completed SAMs of the reactor coolant system (RCS), control room instrument distribution (CRID) system and auxiliary building and engineered safety features ventilation systems. The inspectors noted that the selection and definition of attributes chosen for review were typically general in nature and the supporting documentation defined the detailed sub-attributes needed to effectively execute the desired reviews.

The attributes chosen for the draft RCS SAM (submitted by the ESRR team for licensee management review and approval) included verification of the RCS safety function to act as a pressure/fission product boundary. Inspectors identified that the topical review areas listed in the proceduralized SAM form did not include consideration for the inservice inspection (ISI) program. This appeared to be a potential procedure vulnerability because the ISI program is intended to establish a routine measure and validation of the integrity of this pressure boundary. The ESRR program coordinator considered that the Topical review area that referenced Section XI inservice testing (item 23 of figure 1 and 2 of the ESRR procedure Addendum) would direct the ESSR teams to consider review of the ISI program. However, this did not occur for the draft RCS SAM indicating a weakness with this topical review element. The ESRR program coordinator indicated clarification of this topical review element would be considered in the next procedure change. Inspectors also identified that the draft RCS SAM did not include selection of vendor technical manuals or specifications in the review scope for verification of the RCS heat transfer attribute (which included steam generator (SG) performance). This potentially could have narrowed the review scope such that steam generator design specifications and SG related vendor technical manuals would not be considered in review of this attribute. The potential weaknesses identified in the draft RCS SAM indicated that the effectiveness of the review process would be dependant to an extent on the management and the safety readiness review board (SRRB) review activities. In general, the ESRR teams complied with procedural guidance and management expectations (with minor exceptions) in selection of the system attributes and topical areas required for SAM development.

b.7 ESRR System Walkdowns

The ESRR procedure outlined the requirements for the preparation and performance of system walkdowns. The procedure required that the team develop a walkdown strategy in accordance with the System Walkdown guidelines in Attachment 7. In addition, the procedure required that drawings be used to check specific configuration or as-built drawings details against drawing requirements. The inspector discussed the walkdown and the procedure with the team that performed the walkdown of the 2AB diesel generator. Overall, the diesel generator team followed the requirements of the procedure and the team documented several good findings and observations. However, the inspector noted that the diesel generator team did not develop a documented

walkdown strategy that would have listed walkdown requirements for the team. In addition, the walkdown did not include the control room as required by procedure. Moreover, although the diesel generator team took drawings into the field, the team did not establish, prior to the walkdown, the drawings that were needed to check the as-built characteristics.

On February 18, 1999, the inspectors attended the walkdown strategy meeting of the control room indication distribution (CRID) system. The inspectors noted that the team had developed a documented list of attributes that would be reviewed during the course of the walkdown. The team was observed to define how the walkdown would assess conformance with design requirements. During the course of the meeting, the team worked to develop an acceptable walkdown strategy. The inspectors concluded that the final walkdown strategy developed was acceptable and followed the guidelines set by procedure.

Another issue was discussed with the licensee on the apparent subjective guidance for the type of drawings used during the walkdowns and the use of the word should in section 4.3.8. of the procedure. The inspectors noted that procedure stated that "System safety and accident mitigation functions should be indicated on the system flow diagrams." The markup of system flow diagrams was a technique intended for use by ESRR teams during the system walkdowns. Questions had been raised during ESRR training pertaining to the scope and depth of system walkdowns and licensee management expectations were delineated. For example, the expected drawings to be used for the system walkdown was the "system flow diagram," but that did not preclude use of engineering or as-built drawings to investigate the system. It was also not expected that pipe support drawings would be needed for the walkdowns unless specific concerns were identified with supports. In addition, the inspectors found that the electrical and instrumentation ESRR teams stated that the system flow diagrams applied to fluid flow diagrams and were not clear how the flow diagrams were related to electrical and instrumentation drawings. These subjective expectations for techniques used to accomplish the system walkdowns would necessitate more active management oversight to ensure consistently effective results.

c. Conclusions on ESSR Procedure and Process Implementation

The inspectors concluded that weaknesses identified in the original SRR review process had been corrected with one exception. The licensee had not required the ESRR teams to consider the IPE in selecting system attributes for review in the original version of the ESRR procedure. The licensee subsequently revised the ESRR procedure to include use of the IPE. The ESRR review scope was considered extensive and represented a substantial improvement over the original SRR scope completed in early 1998. Additionally, the compiled data resources and electronic data management systems provided excellent methods for efficient ESRR team reviews of the substantial quantity of information within the ESRR review scope.

The results of the diesel generator walkdown were acceptable; however, the walkdown strategy was not documented and the walkdown did not include the control room. The pre-walkdown strategy meeting for the CRID system was acceptable.

The selection of experienced personnel to staff the ESRR teams, the focused approach on identification of issues during phase one of this process coupled with the decision to not project a restart date (until completion of the identification phase), demonstrated the licensee management commitment to an effective effort. Overall, the inspector concluded that the ESRR procedure described a systematic broad scope program that offered substantial improvement over the original SRR guidelines for determining the capability of a system to meet design basis safety functions.

E5 Engineering Staff Training and Qualification

E5.1 ESRR Training

a. Inspection Scope

Inspectors reviewed lesson plans, interviewed the engineering staff and observed training provided by the licensee to ESRR team members.

b. Observations and Findings

b.1 Comprehensive Training Scope

The scope of training as defined by the ESRR procedure, Attachment 5, "Enhanced System Readiness Review Team Training Requirements," and the implementing lesson plans reviewed was comprehensive. The application of this training, as discussed below, was not initially consistently applied. Overall, the subject matter and level of detail provided in the lesson plans appeared appropriate in that it provided the ESRR teams with the required information needed to understand and perform assigned tasks during the ESRR.

b.2 Inconsistent Application of Training Corrected

Attachment 5 of the ESRR procedure, "Enhanced System Readiness Review Team Training Requirements," defined the training needed for the ESRR team prior to perform the readiness reviews. Only team leaders received all the training needs defined within this enclosure. Specifically, inspectors identified that the balance of the ESRR team did not receive training or testing on: System Design and Licensing Basis (4 hours); Operability Determinations (6 hours); and 50.59 screens and Evaluations (3 hours). Inspectors were concerned that information such as the Cook definitions of degraded conditions, nonconforming conditions, design basis, licensing basis and licensee expectations for 50.59 safety evaluations may not have been adequately disseminated to all team members. In response to this concern, the licensee provided an additional three hours of training on these subjects in lesson plan TS-C-C42, "Design and Licensing Basis, 50.59 and Operability Overview," for the balance of the ESRR team members. The licensee also clarified the training requirements in Revision 1 of the ESRR procedure to match that which had been completed. These actions addressed the inspectors concern, but indicated an inconsistent application or lack of follow-through for the scope of the training originally described.

b.3 Effective Training Implementation

Inspectors questioned team members on aspects of the ESRR training which prepared them for the ESRR process and aspects of training which caused confusion. The team members stated they were generally satisfied with the training in preparing them for the ESRR process with minor exceptions. Team members considered that some instructors lacked an in-depth knowledge of the subject matter being taught, as evidenced by a need to defer questions that were raised. Team members were unclear at the mid-point in their training as to their detailed responsibilities during the ESRR, but each team member believed that this information would be forthcoming. Additionally, the team members clearly understood the purpose of the ESRR process and believed that it would be successful.

The auditorium used to conduct the ESRR related training provided good acoustics and provided adequate seating for the number of personnel involved. Training courses generally made good use of view graphs, reviewed course objectives, had required reading and/or testing for topical areas covered. Instructors were familiar with the material covered and were effective at soliciting student questions and participation. Inspectors considered the practical hands on exercise covering the use of the electronic system assessment database an effective means to troubleshoot problems and familiarize students with this key aspect of the ESRR process. The licensee training staff verified attendance at the ESRR classes and administered makeup training and related course examinations when needed. Overall, the inspectors concluded that the ESRR training lesson plans had been effectively implemented.

c. Conclusions

The inspectors concluded that the ESRR training had been effectively implemented. The scope and depth of the ESRR training was adequate for the teams to perform their assigned responsibilities . However, the original scope of the ESRR training did not include training for all team members pertaining to 10 CFR 50.59, operability determinations and system design basis. This was subsequently corrected, but indicated a weakness in the scope of the original training.

E7 Quality Assurance in Engineering Activities

E7.1 Oversight of the ESRR Program

a. Inspection Scope

The inspectors attended SRRB review meetings pertaining to programmatic areas interfacing with the ESRR process and meetings with ESRR team managers, engineering supervisors and the ESRR program coordinator. The inspectors also reviewed the performance assurance audit and surveillance observations.

b. Observations and Findings

b.1 SRRB Identification of ESRR Vulnerability

A SRRB board, as defined in Attachment 1 of the ESRR procedure, had the responsibility to perform management oversight and assessment of the ESRR Program. The SRRB board consists of a minimum of four and a maximum of six voting members, that included external contract consultants (with extensive nuclear backgrounds and experience), the plant engineering director, an operations representative, a Westinghouse representative, and a licensee representative from the Emergency Operating Procedure Project. The inspectors monitored selected meetings designed to give the SRRB understanding of the program action plans under development for the program reviews that interface/impact the ESRR process. The inspectors noted that the SRRB displayed a questioning attitude, good depth of knowledge of materials presented, and good focus on potentially safety significant issues.

During a SRRB presentation of the Vendor Manual Control Program, the document control program staff identified that no formal program had been implemented to recontact the nuclear steam system supply (NSSS) vendors that supplied safety related components for DC Cook. The licensee had not ensured that vendor information affecting safety related equipment was complete, current and controlled. This condition was known to DC Cook personnel since 1995, but it was not recognized as a problem until July 1998, when it was documented in condition report 98-4062. At the SRRB meeting licensee staff recognized that failure to establish a vendor NSSS recontact program was contrary to Generic Letters (GLs) 90-03 and 83-28. This issue potentially affected a wide range of safety related systems and components to an unknown degree. At the conclusion of this inspection, the licensee was still developing a schedule of corrective actions to determine the scope of systems affected by Westinghouse, GE and ABB supplied safety-related equipment. Additionally, the existing vendor technical manual backlog, in excess of 400 technical manual updates waiting for incorporation, had not been evaluated to determine the impact on the ESRR program. These issues called into question the accuracy of the vendor technical manuals which would be reviewed and relied upon during the ESRR and represented a vulnerability to the effective implementation of the ESRR.

10 CFR 50 Appendix B, Criterion II required in part, that the licensee's quality assurance program shall provide control over activities affecting the quality of identified structures systems and components to an extent consistent with importance to safety. The extent of control required for quality assurance programs as described in GLs 90-03 and 83-28 included establishing an NSSS vendor recontact program. Failure to establish an NSSS vendor recontact program is a violation of 10 CFR 50 Appendix B Criterion II. This Severity Level IV violation is being treated as a Non-Cited Violation (NCV). Appendix C of the Enforcement Policy requires that for Severity Level IV violations to be dispositioned as NCVs, they be appropriately placed in a licensee corrective action program. Implicit in that requirement is that the corrective action program be fully acceptable. The adequacy of D.C. Cook's corrective action program is of concern to both the NRC and Indiana Michigan Power. Because improving the corrective action program to a satisfactory status is an integral part of Indiana Michigan Power's "Restart Plan" and is under the formal oversight of the NRC through the NRC Manual Chapter

0350 Process, “Staff Guidelines for Restart Approval,” this issue will be dispositioned as an NCV (NCV 50-315-99002-01(DRS); NCV 50-316-99002-01(DRS)). This issue remains open pending licensee determination of the scope and impact on affected safety related equipment.

b.2 Active Line Management Oversight of the ESRR Program

The line managers were observed delivering and monitoring the implementation of ESRR training. Line managers established daily meetings with ESRR team managers and actively solicited feedback at these meetings on the conduct of the ESRR process. In general, an extensive amount of management direction was not needed to ensure consistent application of the ESRR process with two exceptions. Based on the information exchanged at these meetings and review of draft SAMs, the expectations for the SAM review scope (see Section E3.1.b.6) required continued management efforts to ensure consistent application of ESRR procedure requirements. Inspectors observed that this continued effort was occurring, in that line managers provided additional written examples of SAMs and verbal expectations for the content and format of the SAM. The ESRR procedure step 4.3.8 indicated that safety and accident mitigation functions should be indicated on the system flow diagrams (see section E3.1.b.7). This appeared to cause confusion for ESRR teams and line managers which indicated that increased management direction would be required to ensure consistency during system walkdowns.

b.3 Active Performance Assurance (PA) Department Surveillance of the ESRR Process

The PA department was actively involved in the ESRR process. The PA audit summary report SURV-99-018 documented surveillance observations of several key ESRR training classes and comments to the ESRR procedure. These comments were critical, accurate and issues well documented in field observation forms or condition reports. The PA department feedback of the ESRR training was provided promptly and in most cases shortly following the training observed. The PA department concluded that the overall quality and effectiveness of the ESRR training was satisfactory. The PA department also provided comments to the draft ESRR procedure prior to the procedure being issued. A substantive PA staff comment resulted in the addition of a procedure requirement to have the SRRB perform an up front review of the proposed SAMs to ensure a quality effort in the planned scope of the system under review. This additional in-line quality check appeared to be a substantive process enhancement. However, the inspectors considered that the PA department decision to comment on the draft version of the ESRR procedure, placed the PA department at risk for losing independence in their oversight role of the line organization functions.

b.4 Performance Assurance ESRR Oversight Plan

The PA 99-S06 System Readiness Review Oversight plan described oversight of the ESRR process. This plan included two vertical slice type inspections on four systems reviewed by ESRR teams. These reviews would be conducted on select system functions/components using safety system functional inspection (SSFI) type techniques. Based on discussions with the PA director a more limited scope of components (two or three) would be selected and then would be reviewed for an SSFI type inspection.

Other differences from an SSFI type inspection included the limited review duration (planned for approximately two weeks), the conduct of the review in parallel with the line organization ESRR effort and the lack of a separate response team to resolve questions that were developed during the course of the inspection. The PA plan appeared to entail some risk for maintaining an independent oversight without influencing the outcome of the line organization review effort, due to the lack of a time buffer between PA department and line organization efforts. The PA director believed that the current oversight plans would provide the line organization prompt feedback and still preserve PA independence without directly influencing the ESRR teams in-process. The basis for his belief was that PA personnel would use separate copies of data sources and separate logistical locations to perform audits/ surveillances of the systems under review by the ESRR teams. At the conclusion of the inspection the PA department staff were considering performing two of the vertical SSFI type inspections after the line organization had completed the identification (phase 1) review on a system to minimize the risk of losing independence with parallel system review efforts. Overall, the oversight plan appeared tailored to provide prompt feedback, with a minimum impact on the line organization ESRR effort.

c. Conclusions

An NCV was identified concerning the failure of the licensee to establish a program to recontact the NSSS vendors that supplied safety related plant equipment. Additionally, existing vendor technical manual backlog, with over 400 technical manual updates waiting for incorporation, had not been evaluated to determine the impact on the ESRR effort. These issues called into question the accuracy of the vendor technical manuals which would be reviewed and relied upon during the ESRR and represented a vulnerability to the effective implementation of the ESRR.

The licensee line organization management, SRRB and PA department were actively engaged in oversight of the ESRR process. The PA oversight plan appeared tailored to provide prompt feedback, with a minimum impact on the line organization ESRR effort. In general, an extensive amount of management direction was not needed to ensure consistent application of the ESRR process with two exceptions. Increased management oversight was needed and provided in development of the SAM. Similarly increased management guidance appeared to be needed to ensure consistent application of techniques used during system walkdowns. These issues indicated that active management oversight would be a key element to ensure a fully effective ESRR program.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at the conclusion of the inspection on February 19, 1999. The licensee acknowledged the inspection conclusions presented and did not identify any potential report material as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee
G. Arent, Licensing
P. Barrett, Performance Assurance Director
P. Carteax, Engineering Training Manager
R. Eckstein, Engineering Restart Director
T. Esper, Licensing
R. Huey, Performance Assurance
B. Kalinowski, Performance Assurance
D. Kosloff, Licensing
M. Mierau, Performance Assurance
M. Rencheck, Vice President of Engineering
L. Thornsberry, Engineering Restart
B. Wallace, Training Director

US NRC
B. Bartlett, Senior Resident Inspector
B. Fuller, Resident Inspector

INSPECTION PROCEDURES USED

IP 93801:	Safety System Functional Inspection
IP 41500:	Training and Qualification Effectiveness
IP 40500:	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems

ITEMS OPENED, CLOSED, AND DISCUSSED

ITEMS OPENED

50-315/99002-01	NCV	Failure to establish an NSSS vendor recontact program
50-316/98002-01	NCV	Failure to establish an NSSS vendor recontact program

ITEMS CLOSED - None

ITEMS DISCUSSED - None

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CR	Condition Report
CRID	Control Room Instrumentation Distribution
DRS	Division of Reactor Safety
ESRR	Enhance Safety Readiness Review
FSAR	Final Safety Analysis Report
IPE	Individual Plant Examination
ISI	Inservice Inspection
LER	Licensee Event Report
NCV	Non Cited Violation
NRC	Nuclear Regulatory Commission
NSSS	Nuclear Steam System Supply
PA	Performance Assurance
PDR	Public Document Room
RCS	Reactor Coolant System
SAM	System Assessment Matrix
SSFI	Safety System Functional Inspection
SRR	System Readiness Review
SRRB	System Readiness Review Board
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report

PARTIAL LIST OF DOCUMENTS REVIEWED

Procedures:
PMP 7200.RST.004 “Expanded System Readiness Review Program,” Revision (0,1 and 2)
PMP 2010.RC.003 “Procedure Use and Adherence,” Revision 0
PMI-2030 “Document Control,” Revision 15

Reports/Audits:
Engineering Issue Review Group Final Report, issued December 19, 1998.
Design Engineering Assessment Report, issued December 12, 1998.
System Readiness Review Oversight Plan, draft dated January 28, 1998.
PA 99-S06 System Readiness Review Oversight, Revision 1 Approved February 13, 1999.
SURV-99-018 Expanded System Readiness Review Procedure and Training, Issued February 15, 1999.

Training Lesson Plans Reviewed:
TS-C-CS37 - Operability Determinations, Revision 0.
TS-C-CS36 - System Readiness Review Training, Revision 0.
TS-C-CS38 - System Engineer Readiness Training Familiarization, Revision 0.
TS-C-CS40 - A Comprehensive Course in Human Error Reduction for Engineering, Revision 0.
GP-C-9827 - Design and Licencing Basis Training (Protectors) Revision 0.
TS-C-C42 “Design and Licensing Basis, 50.59 and Operability Overview,” Revision 0.

Training Observed:
Corrective Action Process
System Engineering Handbook
Causal Analysis
ESRR Process Overview